REMARKS

Reconsideration and removal of the grounds for rejection are respectfully requested. Claims 1-29 were in the application, claims 1 and 10 have been amended.

Claims 1-2, 6-9, 10-16 and 25-29 were rejected under 35 USC 102(b) as being anticipated by Focke, U.S. Patent no. 4,953,711.

To find anticipation, each and every element of the claim must be found in a single prior art reference. W.L. Gore & Associates, Inc. v. Garlock, Inc., 220, U.S.P.Q. 303 (Fed. Cir. 1983). Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the art in possession of the invention. In re Spada, 15 U.S.P.Q.2d 1655 (Fed. Cir. 1990). An anticipatory reference must be enabling, containing adequate descriptions for practicing the applicant's invention. Akzo N.V. v. Intn'l Trade Comm., 1 U.S.P.Q.2d 1241 (Fed. Cir. 1986).

The present invention relates to a method for selecting articles and feeding them to blister packs or containers for filing, and an apparatus for carrying out the method.

As stated in the specification, (P. 1, l. 25-29) there are known devices for feeding articles for filing blister packs which are efficient and reliable for articles whose dimensions are very homogenous. These include a hopper which contains the articles and feeding channels to feed the articles into the respective blisters/containers. With high quality articles which are very homogeneous, the articles flow freely trough the channels, without creating jams and providing substantially continuous and regular operation. In these known devices, feeding articles having substantially different dimensions causes flow interruptions and jamming.

The Focke patent describes one of these known devices, where the articles are cigarettes whose dimensions are very similar and homogenous. The "selection" is really a verification to test for defective cigarettes, that is, the presence of loose tobacco, filters, etc.

As with the discussed prior art, non-homogeneous articles the hopper would still provoke jams and create obstacles in the channels. This occurs because the articles whose dimensions are not compatible with the channels sections, being larger than the channel opening cannot pass through, and these will cause the articles to group together and block the channels.

The present invention provides a method and apparatus for selecting and feeding articles which avoids such jamming, and allows feeding articles independently from their shape and

dimensions.

The non-selected articles contained in the first hopper are not sorted, and some of them may not match the nominal required size of the typical selected article. Where the article is smaller, it will still pass through. However, when the dimension of the article is bigger than the nominal size dimension, the feeding channel can get obstructed, and so selecting means (6) are associated with the first channels (30) and interposed between the first hopper and the second hopper. The selecting means (6) have a cross section whose dimension matches the nominal size of the "size-matching articles", which also matches the nominal section of the first channels (30). The selecting means (6) allow passage, one by one, of "size-matching articles" (2*), that is articles whose dimension matches, or is slight smaller than, the nominal dimension.

Articles with bigger dimensions are stopped within the selecting means (6), stopping the article feeding flow inside the first channels (30), so that these can be removed. In a first embodiment of the invention, the selecting means (6) have a tapered inlet section 30a for each first channels (30), which has a gradually decreasing section with the narrower cross section which matches the nominal size of the "size-matching articles" and a shutter connected to the tapered inlet section to remove and discharge the "size-non-matching articles" before they are delivered to the feeding channel (30).These are sent to a collecting container 8, and so jamming of the channels is avoided..

Sensor means 7 may be situated downstream of the selecting means (6) to detect the interruption of the flow of "size-matching articles" (2*) inside the first channels (30). When this occurs, the shutter is operated to remove the "size-non-matching articles" (20) from the tapered inlet section.

The sensor means (7) co-operate with the selecting means (6) to restore the continuous and regular flow of size-matching articles 2* through the first channels (30).

In another embodiment, the selecting means (6) have one tubular portion (35) having an internal dimension matching the nominal size of the "size-matching articles". This tubular portion moves from one normal operation configuration (A), in which a flow of "size-matching articles" is allowed to pass, to a discharge configuration (B), in which the tubular portion is rotated to discharge size-non-matching articles which are stopped within the tubular portion or against the inlet side of the tubular portion.

As can be seen in figure 5a, articles slightly bigger than the nominal size are stopped by

the inlet opening of the tubular portions (35) and remain stopped in that position until the hinged tubular portions (35) rotate from a normal operation configuration (A) to a discharge configuration (B) where the tubular portions (35) is out of alignment the channels (30). Ejection means (36) to enter the tubular portion, preferably from the outlet side, to remove the articles.

Focke's device comprises a first cigarette magazine (12), the lower portion of which comprises vertical magazine chutes (28), each chute serving to accommodate one vertical cigarette column 14, second vertical magazine chutes (15), and a second cigarette magazine 20.

The first cigarette magazine (12) has an interior which accommodates a testing unit 17 substantially at the half level, but in any event at a distance above the second vertical chute (15).

The test unit (17) temporarily receives a cigarette (11), checks for correct form (as to the presence of tobacco, filter, etc).

The cigarettes (11) are temporarily stopped in the region of the testing unit (17), and examined while in a rest plane. The testing means are preferably opto-electrical sensors connected to evaluating units 33. Defective cigarettes (18) are eliminated in the region of a delivery plane, by being discharged in an axial direction.

Non-defective cigarettes are released downwardly and drop onto the second cigarette magazine above the second chute (15).

Delivering and discharge means 35 ensure that the cigarettes in the test columns are correctly aligned with the testing means in respect to height during the examination.

The delivery and discharge means comprises two guide and support means 36 and 37 which are displaceable in transverse planes relative to each other and relative to the remaining portion of the testing unit 17. The guide and support means are cog-like plates and comprise cog webs 38 or support webs 39 which are associated with the individual test chutes 28.

The various positions and functions of the guide and support means are best explained with reference to figs. 4 to 6

The cog webs (38), support webs (39) and dividing walls (42) all have the same horizontal spacing, fig. 4 illustrates an initial position before examination of the cigarettes commences. The cog webs (38) are aligned with the dividing walls (42), so that the test chutes (28) extend continuously to the support webs (39).

The support webs (39) are displaced in an offset manner relative to the cog webs (38), and consequently they are disposed in the region of the test chutes (28), so that the cigarettes (test

column 26) located therein rest on the support webs (39). (Col. 3, l. 63-col. 4, l. 53)

For the examination to be carried out, the cog webs (38) are displaced to the right, by a distance equal to one-half the horizontal spacing, from the initial position shown in fig. 4 into the test position shown in fig. 5. The cog webs (38) are supported on the support webs (39). The relative position is now so selected that the cigarettes in the testing plane (34) are accurately aligned with the testing means (30).

Simultaneously (position shown in fig. 5), the support webs (39) are also displaced to the right by the same distance.

They are now disposed below the dividing walls (42) and serve to support each pair of cigarettes disposed one above the other between adjacent cog webs (38).

These already tested cigarettes, including any defective cigarettes (18), have been displaced with the cogs webs (38) into the illustrated offset position.

In the position shown in fig. 5, the defective cigarettes (18) are conveyed from the cigarette magazine (12) in an axial direction, i.e. in a direction parallel to the longitudinal dimension of a cigarette.

In the position shown in fig. 6, the tested, intact cigarettes (11) are transferred to the cigarette store (20). For this purpose, the support webs (39) are transversely displaced, by a distance equal to one-half of the horizontal spacing, from the position shown in fig. 5 (offset in relation to the cog webs (38)) into the position shown in fig. 6, thereby opening the partial chutes defined by the cog webs (38) .

The cigarettes disposed therein can now be ejected downwardly.

".. After the tested cigarettes have been discharged as shown in fig. 6, the guide and support means (36) with the cog webs (38) is moved back into the position shown in fig. 4. This arrangement permits two cigarettes in each test chute (28) to drop downwardly until they abut against the support webs (39) which are unchanged when compared with Fig. 6."

The arrangement of the device is adapted to two groups for examination of the cigarettes (11) and for the passage thereof trough the testing unit (17).

The test plane (34) is disposed above the delivery plane (19) at a distance therefrom, such spacing corresponding to the diameter of two cigarettes. Consequently, the tested cigarettes only enter the region of the delivery and discharge means (35) after two feed cycles.

Differences with The Claimed Invention

In the present invention, the selecting means only stop articles whose dimensions are larger than the nominal size of "size-matching articles" and thus larger than the nominal size of the cross section of the first channels. The selecting means do not stop the "size-matching articles", so that the "size-matching articles" flow freely trough the selecting means without any stoppage and drop immediately into the first channels.

In Focke's device, all the cigarettes are stopped in the test unit, both intact cigarettes and defective cigarettes to allow the testing means to perform the check. This is absolutely necessary, otherwise the testing means (opto-electrical sensors connected to evaluating units 33) could not perform the examination.

In the present invention, the selecting means are situated between the first hopper (auxiliary) and the second hopper (main), associated to the first channels. The "size-matching articles" are allowed to freely pass trough the selecting means without stopping between the first hopper and the second hopper;

In Focke's device, the test unit is located inside the first chute, the intact cigarettes are not allowed to freely pass trough the test unit to reach the second cigarette magazine but they are temporarily stopped in a rest plane.

In the present invention, the shutters or the tubular portions and the discharge means are activated only in when a "size-non-matching article" is intercepted or blocked within the selecting means, otherwise "size-matching articles" pass freely through the selecting means and the shutters or the tubular portions are not activated.

In Focke's device, on the contrary, the delivery and discharge means comprise two guide and support means 36 and 37 which are displaceable in transverse planes relative to each other and relative to the remaining portion of the testing unit 17. The guide and support means are cog-like plates and comprises cog webs 38 or support webs 39 which are associated with the individual test chutes 28, and are activated for each examination performed by the testing means.

In the present invention, the shutters serve only to discharge and remove the "size-non-matching articles" stopped by the selecting means; in Focke's device, the the delivery and discharge means serve, first, to stop the column cigarettes, both intact cigarettes and defective cigarettes, in a rest plane in correspondence to the testing means, and secondly, to allow the intact cigarettes to drop downwardly and to remove and discharge the defective cigarettes.

In the present invention, the sensor means intervene only when the "size-non-matching articles" are intercepted or blocked within the selecting means for operating the shutters when they detect the interruption of flow inside the first channels. If a stop does not occur, the sensor means remain inactive.

In Focke's device, on the contrary, the testing means, opto-electrical sensors, are operated every time a cigarette is stopped in the rest plane. Furthermore, contrary of the sensor means of the present application which detect only an interruption of the articles flow within the first channel, the sensor means in Focke's device examine the cigarettes, to distinguish intact cigarettes from defective cigarettes.

In conclusion, the present invention provides an auxiliary hopper and selecting means, the selecting means provided with a cross section matching the nominal size of the "size-matching articles" to be fed to the main hopper, for allowing free passage of the "size-selecting-articles" while stopping only to remove "size-non-matching articles", so that the main hopper will be filled only with size-matching articles.

Claim 3 was rejected as being obvious over Focke. To uphold a finding of obviousness, there must be some teaching suggestion or incentive for doing what the applicant has done. ACS Hospital Systems, Inc. v. Montifiore Hospital, 221 U.S.P.Q. 2d 929 (Fed. Cir. 1984). The examiner must in particular note where the reference teaches away from the invention, In re Graselli et al, 218 U.S.P.Q. 768 (Fed. Cir. 1983). Further the claimed invention as a whole, including its' properties and purposes must be considered by the examiner. In re Wright, 848 F.2d 1216 (Fed. Cir. 1988). The examiner thought it would be obvious to use a hinged shutter on the tapered section for allowing for axial removal. However, there is no teaching or suggestion for the size matching/non-matching operation as described above relative to claim 1, nor for using the tubular element with any hinged structure, and so claim 3 is not rendered obvious by Focke.

Claims 1-19, 22, 24-27 and 29 were rejected as being anticipated by Archer in view of Soloman. It is assumed that the examiner intended to reject for obviousness, as anticipation is usually based on a single reference.

Archer teaches a system and method for automatically feeding, inspecting and diverting tablets for continuous filling of tablet containers, including a tablet conveyor system which divides the tablets in a plurality of tablet streams for inspection by color, size and shape. Following the tablet inspection, each tablet passes through a tablet diverter which diverts the tablets for recycle, for rejection or to one of two bottle filling positions based upon instruction from the inspection.

Archer's system comprises has only a single hopper for storing tablets, a feeder for diverting the stored tablet into a plurality of tablet streams, and a conveyor for continuously conveying the plurality of tablet streams from the feeder past an inspection station. The inspection station comprises a means for inspecting each tablet passing the inspection station by color, shape and size and producing a first signal indicting whether each tablet satisfies predetermines values. Once an individual tablet has been inspected by the system, a signal is sent to a diverter control which, in turn, utilizes this information to control the tablet diverter system for filling bottles.

The inspection system uses three line scan cameras: one camera 27 to provide data on shape and area and one color data. This camera also judges damage. The other two cameras 29 provide data on the other two color.

In a preferred embodiment, the tablet diverter system comprises a diverter body 57 which receives the tablets in free fall off the end of the conveyor 61.

Although the diverter body has two sets of chutes, one for each of the two tablet streams, only one stream of tablets and one chute are shown.

The diverter body provides a free fall path such that the tablets do not touch the sidewalls until they have been diverted.

Each chute has three mechanical flaps, 63, 65, 67 respectively to divert the tablets into the correct chute. Archer does not teach or suggest the use of a second hopper in which are fed size selected articles. Also, Archer does not teach the use of an inspection station to stop size-non-matching-articles allowing size-matching articles to pass freely through the inspection system.

In Archer's device, the selecting means are constituted by an inspection system, that is,

the sensor means which include three line scan cameras.

In the present invention the selecting means are constituted by tapered portions or tubular portions which stop the "size-non-matching articles". In Archer's device the sensor means are responsible of the check of the articles. The sensor means of the present invention only detect a stop of a size-non-matching article for operating the shutters. If a stop does not occur, the sensor means remain inactive. The sensor means of the present invention are not responsible checking the size matching articles passing thereby.

In Archer's device the chutes serve only as conduits for articles, and have no other function, where in the present invention, the tapered portions or tubular portions are the selecting means which stop the non-size-matching articles.

The combination with Solomon does not overcome the deficiencies in Archer. Soloman teaches an automatic filling system which insert objects into a container including a feed hopper. The feed hopper has a discharge station. A collection station is located at the discharge station for placing the containers in position for receiving the objects fed from the discharge station.

The aim of the Soloman's invention is to place a predetermined number of objects into each of a plurality of containers. Soloman does not teach how to verify the integrity of the articles before their feeding to the container. In fact, Soloman does not give any hint in any part of the description and in any part of claims how to distinguish the articles of different sizes, to prevent jamming.

The feed hopper of Soloman's system includes a flat inclined disc (22) and a cylindrical member (24) having an annular wall (26) which extends around and encloses disc (22). The upper end of inclined disc (22) is located generally at the upper edge (28) of cylindrical member (26). The disc (22) would be rotated at a sufficiently high speed to create a centrifugal force which causes the objects (16) to move toward the periphery of disc (22). Annular wall (26) of cylindrical member (24) maintains the objects (16) at the periphery of disc (22) except at the upper end of disc (22) which is at generally the same level as the upper edge (28) of the cylindrical member (24).The capsules/tablets or other object (16) move under centrifugal force onto the upper edge (28). As illustrated a guide wall (38) is mounted at the upper edge (28) of cylindrical member (24) and extends upwardly above edge (28). Guide wall (38) is mounted in any suitable manner so that it remains stationary or fixed while the feed hopper (20) is rotating.

The guide wall (38) extends more than 360° having a pair if free ends (40, 42) which are

disposed opposite each other to create a discharge opening (44) at the discharge station of system (10).

Free end (44) is secured to the inner side of upper edge (28) and then gradually extends across upper edge (28) until the main portion of wall (38) is disposed at the outer side of upper edge (28) with free end (40) extending away from the edge (28). Free end (40) is, for example, tangential with respect to the outer side of edge (28).

A delivery chute (48) is located at the opening (44) of the discharge station and is directed to deposit the objects (16) into any suitable container (50). A deflector (54) deflects objects back into hopper (20). Deflector (54) includes a plate (64) hinged at pin (66) against wall (38) or wall (38) may include a recess or cutout for receiving plate (64) so as to form an uninterrupted surface plate (64) is in its non-deflecting position. The deflector (54) would be actuated whenever it is desired to stop the flow of objects (16) from passing through the discharge opening (44). Such flow would be stopped when time is required to change containers at the end of chute (48).

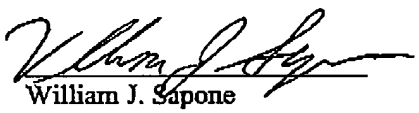
Soloman does not teach a selection of articles, or to use a second hopper for feeding the container with only size selected articles. In fact, Soloman would load the container with both defective and intact articles. The delivery chute serves only to convey the articles from the hopper to the container, the deflector actuated to stop the flow of articles when it is time to place an empty container at the end of chute.

In the present invention, the tapered portions or tubular portions constitute the selecting means which stop the non-size-matching articles, the shutter activated only to discharge and remove the size-non-matching articles stopped by the selecting means, and not to stop the flow of articles.

Thus, the person having ordinary skill in the art reviewing the disclosures in Archer and Soloman would find no teaching or suggestion for the method or device of the present invention.

Based on the above amendment and remarks, favorable consideration and allowance of the application are respectfully requested. However should the examiner believe that direct contact with the applicant's attorney would advance the prosecution of the application, the examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,



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